

What is Claimed Is:

1. A paint mixer comprising:
  - a. a housing; and
  - b. a rotatable frame within the housing, the frame having
    - i. a base portion supporting a first plate for receiving a paint container,
    - ii. a pair of upright portions extending from the base member,
    - iii. a bridge portion extending between the upright portions,
    - iv. a movable clamp assembly extending below the bridge portion and positioned between the upright portions and having a centrally-located threaded rod extending through the bridge portion and directly connected at one end to a rotatable handle and at the other end to a second plate for advancing and retracting the second plate with respect to the first plate in opposed relationship thereto for clamping a paint container between the first and second plates, and
    - v. a selectively releasable lock including a pawl assembly located in a stationary position on the bridge portion wherein the lock has a first state preventing retracting movement of the second plate with respect to the first plate while permitting advancing movement of the second plate with respect to the first plate and having a second state permitting retracting movement of the second plate with respect to the first plate.
2. The paint mixer of claim 1 wherein the pawl assembly further includes a pawl handle pivotably mounted directly on the bridge portion.
3. The paint mixer of claim 2 wherein the pawl handle is resiliently biased with respect to the bridge portion.
4. The paint mixer of claim 1 wherein the lock further includes a rotatable sprocket selectively engageable with the pawl assembly.

5. The paint mixer of claim 4 wherein the sprocket includes involute-like gear teeth.
6. The paint mixer of claim 5 wherein the pawl assembly includes an involute-like tooth.
7. The paint mixer of claim 1 further comprising a bearing assembly including a radial bearing and an axial thrust bearing supporting the centrally located threaded rod against radial and axial loads.
8. The paint mixer of claim 1 wherein the frame further comprises a backplate and the pair of upright portions of the frame are formed as a pair of separate upright members secured to the backplate.
9. The paint mixer of claim 1 wherein the frame further comprises a backplate and at least one of the pair of upright portions of the frame are formed integrally from a common piece of material with the backplate.
10. The paint mixer of claim 9 wherein each of the pair of upright portions of the frame are formed integrally with the backplate from the common piece of material.
11. The paint mixer of claim 1 wherein the frame further comprises a backplate and the base portion is formed integrally from a common piece of material with the backplate.
12. The paint mixer of claim 1 wherein the frame further comprises a backplate and the bridge portion is formed integrally from a common piece of material with the backplate.

13. The paint mixer of claim 1 wherein the bridge portion is a separate piece secured to the upright portions.
14. A paint mixer comprising:
- a. a housing; and
  - b. a rotatable frame within the housing, the frame having
    - i. a base portion supporting a first plate for receiving a paint container,
    - ii. a pair of upright portions extending from the base portion,
    - iii. a bridge portion extending between the upright portions,
    - iv. a movable clamp assembly located between the pair of upright portions and having a second plate in opposed relationship to the first plate for clamping a paint container between the first and second plates, and
    - v. at least one polymer guide member secured to the movable clamp assembly and in contact with at least one of the upright portions, the guide member guiding the movable clamp assembly within the frame and reducing noise and friction that would otherwise result from contact between the movable clamp assembly and the at least one upright portion.
15. The paint mixer of claim 14 wherein the at least one polymer guide member comprises a pair of guide members.
16. The paint mixer of claim 14 wherein the at least one polymer guide member is formed of a relatively rigid, low friction polymeric material.
17. A paint mixer comprising:
- a. a housing; and
  - b. a rotatable frame within the housing, the frame having
    - i. a base portion supporting a first plate for receiving a paint container,
    - ii. a pair of upright portions extending from the base portion,
    - iii. a bridge portion extending between the upright portions, and

- iv. a yoke assembly extending between the pair of upright portions and including a second plate via a threaded rod for advancing and retracting the second plate with respect to the first plate in opposed relationship thereto for clamping a paint container between the first and second plates, and a pair of paint splash guards, with each of the paint splash guards shielding at least a range-of-travel region of a respective one of the upright portions.
18. The paint mixer of claim 17 wherein each of the paint splash guards extends along the respective upright portion adjacent the yoke assembly.
19. The paint mixer of claim 17 wherein each of the paint splash guards have a flange providing a stop to limit travel of the yoke assembly.
20. The paint mixer of claim 19 wherein the flange has an aperture through which the range-of-travel region of the respective upright portion extends.
21. The paint mixer of claim 20 including a step in a cross section of the upright portion adjacent the range-of-travel region with a cross section greater than a cross section of the aperture wherein engagement of the step with the flange provides the stop to limit travel of the yoke assembly.
22. A paint mixer comprising:
- a. a housing; and
  - b. a rotatable frame for holding a paint container within the housing, the frame having an axis for rotation of the frame offset with respect to the center of mass of the frame such that the frame will come to rest in a generally upright position after mixing.
23. The paint mixer of claim 22 further comprising

c. a paint container received in the frame, wherein the axis for rotation of the frame offset with respect to the center of mass of the combination of the frame and paint container such that the frame will come to rest with the paint container in a generally upright position after mixing.

24. A paint mixer comprising:

- a. a housing; and
- b. a rotatable frame within the housing, the frame having a first plate for receiving a paint container,

wherein the first plate includes a raised portion surrounding a portion of a periphery of the first plate and a relief in the raised portion for assisting in unloading the paint container off of the first plate.

25. The paint mixer of claim 24 wherein the relief is oriented towards a front of the mixer when the mixer is stopped and the frame is in an upright position.

26. A paint mixer comprising:

- a. a housing;
- b. a rotatable frame within the housing;
- c. a main drive connected to the rotatable frame to rotate the frame about a first axis concentric with a stationary gear; and
- d. a gear train mounted on the rotatable frame having a planet gear in engagement with the stationary gear and connected to rotate a paint container located in the frame about a second axis; and
- e. a common base having the main drive and stationary gear rigidly mounted thereto to maintain a desired engagement between the stationary gear and the planet gear.

27. The paint mixer of claim 26 wherein the mixer further comprises

f. a main base connected to and supporting the common base via at least one vibration isolator.

28. A paint mixer comprising:

- a. a housing;
- b. a frame located within the housing and rotatable about a first axis; and
- c. a gear train mounted on the rotatable frame for rotating a paint container in the frame about a second axis and having a gear ratio between the rotations of the frame about the first axis and the rotations of the paint container about the second axis is an integer number.

29. The paint mixer of claim 28 wherein the gear train has a timing relationship to repeatably position the paint container to a predetermined orientation with respect to the housing when the frame is in the upright position.

30. The paint mixer of claim 29 wherein the paint container rests on a rotatable plate having a raised peripheral portion with a relief therein for loading and unloading the paint container, and the relief is positioned at the front of the mixer when the frame is in the upright position.

31. A method of selectively positioning a paint container in a clamping frame of a paint mixer comprising the steps of:

- a. inserting a paint container between a pair of clamping plates in a paint mixer; and
- b. advancing one plate towards the other plate using a single lead screw driven by a handle connected directly to the lead screw and having a ratcheting mechanism with a sprocket gear having involute-like teeth positively fixed to the handle and engaging a pawl assembly, wherein the ratcheting mechanism permits advance of the lead screw to secure the paint container between the pair of plates and selectively prevents retraction of the one plate with respect to the other plate.

32. The method of claim 31 further comprising the steps of:
- c. manually retracting the pawl assembly from engagement with the involute-like teeth of the sprocket gear thus releasing the ratcheting mechanism and permitting retraction of the one plate away from the other plate; and
  - d. removing the paint container from between the pair of clamping plates in the paint mixer.
33. The method of claim 31 further comprising the step of:
- c. supporting the lead screw against radial and thrust loads with a bearing assembly having both radial and thrust bearings.
34. A method of mixing paint in a paint mixer comprising the steps of:
- a. providing a rotatable frame for holding the paint container, with the frame and paint container having an axis of rotation and a center of mass;
  - b. offsetting the axis of rotation from the center of mass to permit gravity to rotate the frame and paint container to a generally upright position in the absence of another rotational force applied to the frame;
  - c. applying a rotational force to the rotating the frame to mix paint in the container; and
  - d. removing the rotation force from the rotatable frame and allowing the frame to come to rest with the paint container in a generally upright position after mixing as a result of the offset between the axis of rotation and center of mass.
35. A method of preventing paint buildup on a range-of-travel portion of a movable clamp assembly carried by a rotatable frame in a paint mixer, the method comprising the step of shielding range-of-travel portion of the rotatable clamp assembly with a splash guard.

36. A method of removing a paint container from a paint mixer of the type having a rotatable frame with a lower clamping plate with a raised peripheral portion, the method comprising the steps of:

- a. providing a relief in the raised peripheral portion of the lower clamping plate; and
- b. sliding a paint container off of the lower clamping plate through the relief in the raised portion.

37. The method of claim 36 wherein the paint mixer is of the type having a geared drive connection between a tumble axis and a spin axis for mixing the contents of the paint container and wherein the method further comprises an additional step between steps a. and b. of:

- a1. synchronizing the gearing between the tumble axis and the spin axis to orient the relief towards an opening in the paint mixer when the frame and paint container are in an upright position.

38. The method of claim 37 wherein step a1. further comprises synchronizing the lower clamping plate with the rotatable frame.

39. A method of preventing denting of a side of a paint container during unloading from a paint mixer of the type having an opening with a lower edge for loading and unloading a paint container with respect to the mixer, the method comprising the steps of:

- a. providing a strike plate located below the lower edge of the opening and facing an inside of the mixer; and
- b. contacting the strike plate with a lower edge of the paint container as the paint container is unloaded from the mixer such that the side of the paint container is not dented by contact with the lower edge of the opening.



40. The method of claim 39 wherein the lower edge of the opening includes a roller.
41. The method of claim 40 wherein step a. further comprises providing a roller bracket integral with the strike plate to position the roller in a predetermined location with respect to the strike plate.
42. The method of claim 41 further comprising an additional step between steps a. and b. comprising:
- a1. adjustably positioning the roller bracket with respect to the opening.
43. A paint mixer comprising:
- a. a housing having an opening with a lower edge for loading and unloading a paint container with respect to the mixer; and
- b. a strike plate located below the lower edge of the opening and facing an inside of the mixer and positioned to contact a lower edge of the paint container as the paint container is unloaded from the mixer such that the side of the paint container is not dented by contact with the lower edge of the opening.
44. The paint mixer of claim 43 further comprising a roller located at the lower edge of the opening.
45. The paint mixer of claim 44 further comprising a roller bracket integral with the strike plate and supporting the roller in a predetermined location with respect to the strike plate.
46. A paint mixer comprising:
- a. a housing having an opening for loading and unloading a paint container with respect to the mixer, the opening having a lower edge;
- b. a rotatable frame within the housing; and

c. a strike plate secured to the housing and located below the lower edge of the opening and facing an inside of the mixer for receiving the impact of a paint container as it is unloaded from the paint mixer.

47. The paint mixer of claim 46 further comprising:

d. a roller located above the strike plate for transferring the paint container into and out of the mixer.

48. The paint mixer of claim 47 wherein the strike plate further comprises a portion of a roller bracket carrying the roller.